IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:	)	
	)	
Inventor: Judith A. Bayer et al.	)	Examiner: Daniel Lastra
	)	
Serial #: 09/998,750	)	Group Art Unit: 3688
	)	
Filed: November 30, 2001	)	Appeal No.: _____
	)	
Title: AUTOMATED PROMOTION RESPONSE MODELING IN A CUSTOMER RELATIONSHIP MANAGEMENT SYSTEM	)	

REPLY BRIEF OF APPELLANTS

MAIL STOP APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In accordance with 37 C.F.R. §41.41, Appellants' attorney hereby submits the Reply Brief of Appellants in response to the Examiner's Answer dated November 16, 2009 for the above-identified application.

No fee is required for filing this Reply Brief of Appellants. However, the Office is authorized to charge any necessary fees or credit any overpayments to Deposit Account No. 50-4370 of Teradata Corporation, the assignee of the present application.

I. ARGUMENTS

In the Answer, the Examiner reiterates the rejections found in the Office Action dated March 13, 2009. In this regard, this Reply Brief of Appellants incorporates by reference herein the entirety of the previously filed Brief of Appellants. Moreover, additional arguments directed to the Examiner's Answer are presented below.

A. Arguments directed to the first grounds for rejection: Claims 1-21 stand rejected under 35 U.S.C. §102(e) as being anticipated by Cook, U.S. Patent No. 6,631,360 (Cook).

Appellants' attorney respectfully submits that U.S. Patent No. 6,631,360 (Cook) does not anticipate claims 1-21 under 35 U.S.C. §102(e) for the reasons set forth below.

1. Independent claims 1, 8 and 15

i. The cited portions of Cook do not teach or suggest "generating an input data set for the response model, wherein the input data set is generated using an Analytic Data Set Template containing one or more Analytic Variables that include both primitives that are base variables and conditions that are predicates, aggregates or other functions, wherein the primitives and conditions determine how the Analytic Variables are derived from operational data to produce the input data set, and wherein the Analytic Variables are subdivided into independent variables and their related dependent variables."

In the "Response to Argument," the Examiner's Answer analyzes Appellants' specification as it relates to "Analytical Variables," and notes that Analytical Variables are comprised of primitives and conditions that describe how the Analytical Variable are derived from the operational data. The Examiner's Answer then asserts that Cook teaches this limitation because it selects a base variable category (i.e. buyer/non-buyer) and applies some type of selection function to the data, or applies conditions to primitive data (i.e. categories), or includes data sources with independent and dependent variables. From this, the Examiner's Answer asserts that Cook teaches Appellants' claimed limitation.

Appellants' attorney disagrees.

Nowhere does Cook teach or suggest Analytic Data Set Templates. Specifically, Cook does not use Analytic Data Set Templates to generate data, Cook does not teach that Analytic Data Set Templates contain Analytic Variables, and Cook does not generate its input data sets from operational data using primitives and conditions of Analytic Variables contained within Analytic Data Set Templates.

Instead, the cited portions of Cook merely describe data that contains profile feature information (e.g., independent variables) regarding individuals that fall in the defined categories (e.g., dependent variables). However, Cook does not describe how this data is created, other than by "profiling" or "collecting," and only states that "[t]he data source must include independent variables, i.e., individual profile features and an associated dependent variable, i.e., the category into which a profiled individual falls."

ii. The cited portions of Cook do not teach or suggest "splitting the input data set into a test sample and a validation sample."

In the "Response to Argument," the Examiner's Answer asserts that the cited portions of Cook teach selecting (i.e. generating) a test sample (i.e. training sample) and a validation sample (i.e. unknown sample) from a data source, and that this comprises "splitting" the data source into a training sample and a validation sample.

Appellants' attorney disagrees.

There is no "validation sample" in the cited portions of Cook. Instead, the unknown sample from FIG. 9 is used to create predictions and forecasts. Note too that FIG. 9 refers to a "training data setup process," not a validation process. Moreover, nowhere do the cited portions of Cook describe splitting a data set. Instead, the cited portions of Cook describe a training sample being developed independently, for example, of any validation sample.

iii. The cited portions of Cook do not teach or suggest "identifying independent and their related dependent variables using the test sample."

In the "Response to Argument," the Examiner's Answer asserts that the cited portions of Cook teach identifying independent and dependent variables from a test or training sample.

Appellants' attorney disagrees.

The cited portions of Cook merely describe setting up a training sample by defining the categories, identifying a data source for a selected category (where the data source "must include" both independent variables, i.e., individual profile features and an associated dependent variable, i.e., the category into which a profiled individual falls), and then downloading data from the data source to establish a training set.

However, there is no identification of independent and their related dependent variables being performed in the cited portions of Cook. Instead, Cook merely states that the data source "must include" independent variables, i.e., individual profile features and associated dependent variables, i.e., the category into which a profiled individual falls, without stating how such data is created, other than by "profiling" or "collecting."

iv. The cited portions of Cook do not teach or suggest "identifying a Transformation Type for each of the identified independent and their related dependent variables."

In the "Response to Argument," the Examiner's Answer asserts that the cited portions of Cook teach probability density functions that result in normal or quadratic decision surfaces, where the density function is used to create a decision array and where each element of the decision array is a gain or loss that shows an association between the identified related independent variables (i.e. individual profile features) and the dependent variables (i.e. category into which a profile individual falls).

Appellants' attorney disagrees.

As noted in Appellants' specification, a Response Modeling service identifies a Transformation Type for the identified related independent and dependent variables, i.e., the predictive variables. The Transformation Type is a mathematical operation that provides the strongest association between the identified related independent variable and the dependent variables, namely "why" (mathematically) an independent variable is associated with a particular dependent variable.

The cited portions of Cook, on the other hand, merely describe the inference engines as algorithms that make the assumption that independent variables for a given category are distributed according to some probability density function.

However, the probability density function of Cook is not a Transformation Type. As noted above, a Transformation Type is defined as a mathematical operation that provides the strongest "association" between the identified independent variables and their related dependent variables. Cook's probability density function, in contrast, relates to the "distribution" of independent variables among different categories, not the "association" between one or more of the independent variables and their specific related category.

v. The cited portions of Cook do not teach or suggest "generating a Model Equation for each of the identified independent and their related dependent variables using the identified Transformation Type and estimated Coefficient."

In the "Response to Argument," the Examiner's Answer asserts that the Appellant is arguing about a limitation not stated in the claims when he mentions that Appellants' claims recite "why" a variable is associated with another, and that the cited portions of Cook teach an association between independent and dependent variables.

Appellants' attorney disagrees.

The cited portions of Cook merely describe inference engines as algorithms that make the assumption that independent variables for a given category are distributed according to some probability density function, and that the best inference engine is determined, using the training sample, based on an estimated Gaussian density function. As described in Cook, the estimated Gaussian density function estimates the proportions of selected subpopulations in a larger population, e.g., the frequency of occurrence of the independent variable in a category.

In addition, the cited portions of Cook merely describe that a category is selected, the parameters for the density function for the selected category are estimated from the training data (in the case where a Gaussian density function is used, the mean for each selected feature and the variance-covariance matrix for these features are estimated within each category), and then the estimated density function for the selected category is used to calculate an estimated relative density value for a selected individual in the selected category (the values of the selected features are substituted for the variables in the estimated Gaussian density function and a scalar is obtained).

The density function of Cook describes the "density" of a variable at a point, e.g., the frequency of occurrence of a variable at a point. Cook's density function therefore relates to the "distribution" of independent variables among categories (dependent variables). However, the distribution of independent variables among dependent variables is not a mathematical representation of the association of independent variables and their related dependent variables.

As noted in Appellants' specification, a Response Modeling service identifies a Transformation Type for the identified related independent and dependent variables, i.e., the

predictive variables. The Transformation Type is a mathematical operation that provides the strongest association between the identified related independent variable and the dependent variables. After identifying a Transformation Type, the Response Modeling service estimates a Coefficient, or weight, for each of the identified related independent and dependent variables found to be significant in predicting the likelihood of response. The Coefficient is a relative measure of the contribution of a variable to the likelihood of response. However, the size of the Coefficient does not indicate the relative importance of the variable in predicting the likelihood of response, since it is itself dependent on the magnitude of the variable. The sign of the Coefficient indicates whether the independent variable is positively or negatively correlated with the dependent variable. Finally, after estimating a Coefficient, the Response Modeling service generates a Model Equation that is a mathematical representation of the association of the identified related independent and dependent variables that result in a statistical best fit of known responders versus non-responders. Specifically, the Model Equation includes an association of the independent variable with the dependent variable that best differentiates responders from non-responders, as well as the Transformation Type and the Coefficients associated with the variables.

Cook's density function, which relates to the "distribution" of independent variables among categories (dependent variables), does not comprise a Transformation Type, which is a mathematical operation that provides the strongest association between the identified related independent variable and the dependent variables, or a Coefficient, which is a mathematical representation of the association of the identified related independent and dependent variables that result in a statistical best fit of known responders versus non-responders. Consequently, Cook does not teach or suggest "generating a Model Equation using a Transformation Type and a Coefficient."

vi. The cited portions of Cook do not teach or suggest "estimating a Coefficient for each of the identified independent and their related dependent variables."

In the "Response to Argument," the Examiner's Answer asserts that the cited portions of Cook teach estimating coefficients (i.e. density value) for each independent and dependent variable of the graphs of FIGS. 12 and 13.

Appellants' attorney disagrees.

As noted in Appellants' specification, a Response Modeling service identifies a Transformation Type for the identified related independent and dependent variables, i.e., the predictive variables. The Transformation Type is a mathematical operation that provides the strongest association between the identified related independent variable and the dependent variables. After identifying a Transformation Type, the Response Modeling service estimates a Coefficient, or weight, for each of the identified related independent and dependent variables found to be significant in predicting the likelihood of response. The Coefficient is a relative measure of the contribution of a variable to the likelihood of response. However, the size of the Coefficient does not indicate the relative importance of the variable in predicting the likelihood of response, since it is itself dependent on the magnitude of the variable. The sign of the Coefficient indicates whether the independent variable is positively or negatively correlated with the dependent variable.

The cited portions of Cook, on the other hand, merely describe estimated relative density values for each category, namely the frequency of occurrence of independent variables in the categories. However, the estimated relative density values of Cook are not Coefficients, which are defined as a relative measure (e.g., a weight) of the identified independent and their related dependent variables' contributions to a likelihood of response.

vii. The cited portions of Cook do not teach or suggest "validating the generated Model Equation by applying it to the validation sample."

In the "Response to Argument," the Examiner's Answer asserts that the cited portions of Cook teach performing a calibration process to determine the accuracy of a forecast.

Appellants' attorney disagrees.

Calibration in Cook refers to a process that creates a decision array from the results of the training sample. Calibration generally is considered a process for establishing a relationship between a measuring device and the units of measure, in order to quantify an uncertainty estimate.

Validation in Appellants' invention applies a Model Equation to a validation sample, which is created by splitting the input data set, after the Model Equation has been generated, using of the Transformation Type and Coefficient identified from the independent and dependent

variables of a test sample. As described in Appellants' specification, validation of the Model Equation compares a predicted likelihood of response with an actual response.

viii. The cited portions of Cook do not teach or suggest "scoring customers retrieved from a database using the validated Model Equation as a customer promotion response model for use in customer relationship marketing."

In the "Response to Argument," the Examiner's Answer asserts that the cited portions of Cook teach determining the relative density value (i.e. score) for each individual category, feature and category.

Appellants' attorney disagrees.

The cited portions of Cook merely describe using the estimated density function for a selected category to calculate an estimated relative density value for a selected individual in the selected category. As noted previously, the estimated density function relates to the "distribution" of independent variables among categories (dependent variables).

As defined in Appellants' specification, a Model Equation is a mathematical representation of the association of independent variables and their related dependent variables, namely "why" (mathematically) an independent variable is associated with a particular dependent variable. Consequently, Cook does not describe the same Model Equation as recited in Appellants' claims.

ix. Summary: Appellants' claimed invention is patentable over Cook.

In light of the above, Appellants' attorney submits that independent claims 1, 8, and 15 are allowable over Cook. Further, dependent claims 2-7, 9-14, and 16-21 are submitted to be allowable over Cook in the same manner, because they are dependent on independent claims 1, 8, and 15, respectively, and thus contain all the limitations of the independent claims. In addition, dependent claims 2-7, 9-14, and 16-21 recite additional novel elements not shown by Cook, as set forth in the Brief of Appellants.

II. CONCLUSION

In light of the above arguments, Appellants' attorney respectfully submits that the cited

references do not anticipate nor render obvious the claimed invention. More specifically, Appellants' claims recite novel physical features which patentably distinguish over any and all references under 35 U.S.C. §§ 102 and 103.

As a result, a decision by the Board of Patent Appeals and Interferences reversing the Examiner and directing allowance of the pending claims in the subject application is respectfully solicited.

Respectfully submitted,

GATES & COOPER LLP
Attorneys for Appellants

Howard Hughes Center
6701 Center Drive West, Suite 1050
Los Angeles, California 90045
(310) 641-8797

Date: January 13, 2010

By: /George H. Gates/
Name: George H. Gates
Reg. No.: 33,500

GHG/